

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Atty Dkt. 2661-22

C# M#

CRAPO et al

Serial No. 10/051,367

APR 25 2002

Group Art Unit:

Examiner:

Filed: January 22, 2002

Date: April 25, 2002

Title: CANCER THERAPY

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

**INFORMATION DISCLOSURE STATEMENT**

This is a response/amendment/letter in the above-identified application and includes an attachment which is hereby incorporated by reference and the signature below serves as the signature to the attachment in the absence of any other signature thereon.

**Fees are attached as calculated below:**

Total effective claims after amendment 0 minus highest number  
previously paid for 20 (at least 20) = 0 x \$ 18.00 \$ 0.00

Independent claims after amendment 0 minus highest number  
previously paid for 3 (at least 3) = 0 x \$ 84.00 \$ 0.00

If proper multiple dependent claims now added for first time, add \$280.00 (ignore improper) \$ 0.00

Petition is hereby made to extend the current due date so as to cover the filing date of this  
paper and attachment(s) (\$110.00/1 month; \$400.00/2 months; \$920.00/3 months) \$ 0.00

Terminal disclaimer enclosed, add \$ 110.00 \$ 0.00

☐ First/second submission after Final Rejection pursuant to 37 CFR 1.129(a) (\$740.00) \$ 0.00

☐ Please enter the previously unentered, filed

☐ Submission attached

**Subtotal \$ 0.00**

If "small entity," then enter half (1/2) of subtotal and subtract -\$ 0.00

☐ Applicant claims "small entity" status. ☐ Statement filed herewith

Rule 56 Information Disclosure Statement Filing Fee (\$180.00) \$ 0.00

Assignment Recording Fee (\$40.00) \$ 0.00

Other: 0.00

**TOTAL FEE ENCLOSED \$ 0.00**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140. A duplicate copy of this sheet is attached.

1100 North Glebe Road, 8<sup>th</sup> Floor  
Arlington, Virginia 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100  
MJW:tat

NIXON & VANDERHYE P.C.  
By Atty: Mary J. Wilson, Reg. No. 32,955

Signature: Mary J. Wilson

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



In re PATENT APPLICATION OF

CRAPO et al

Atty. Ref.: 2661-22

Serial No.: 10/051,367

Group Art Unit:

Filed: January 22, 2002

Examiner:

For: CANCER THERAPY

\* \* \* \* \*

April 25, 2002

INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of Patents  
and Trademarks  
Washington, DC 20231

Sir:

Attached is Form PTO-1449 listing the enclosed documents.

This IDS is intended to be in full compliance with the rules, but should the Examiner find any part of its required content to have been omitted, prompt notice to that effect is earnestly solicited, along with additional time under Rule 97(f), to enable Applicant to comply fully.

This case is one of a group of cases defined as follows: US Appln. No. 09/201,722 (the parent of which is USP 6,127,356 - see also corresponding WO 96/40223), USP 6,103,714 (corresponding to WO 96/09053), US Appln. No. 09/296,615 (corresponding to WO 99/55388), US Appln. No.

CRAPO et al -- Serial No.: 10/051,367

09/880,124 (corresponding to WO 99/23097), US Appln. No.  
09/490,537 (corresponding to WO 00/43395), US Appln. No.  
09/880,075 (corresponding to WO 01/96345), US Appln. No.  
10/051,367, US Prov. Appln. No. 60/294,604, US Prov. Appln.  
No. 60/328,398, and USP 5,747,026. Copies of the  
referenced issued patents and published PCT's are listed on  
the attached PTO-1449 Forms. Copies of the pending  
applications referenced above having no published  
counterparts are attached.

Contingent Request Under Rule 97(c): Should a first  
action on the merits have been issued on the same day or  
before this IDS is filed, please accept this IDS under Rule  
97(c) and charge the requisite Rule 17(p) fee to our  
Deposit Account No. 14-1140 (2661-22) and proceed to  
consider this IDS.

Consideration of the foregoing and enclosures plus the return of a copy of the herewith Form PTO-1449 with the Examiner's initials in the left column per MPEP 609 are earnestly solicited.

Respectfully submitted,

**NIXON & VANDERHYE, P.C.**

By Mary J. Wilson  
Mary J. Wilson  
Reg. No. 32,955

MJW:tat

1100 North Glebe Road  
8<sup>th</sup> Floor  
Arlington, Virginia 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100

INFORMATION DISCLOSURE  
CITATION

ATTY. DOCKET NO.

SERIAL NO.

2661-22

10/051,367

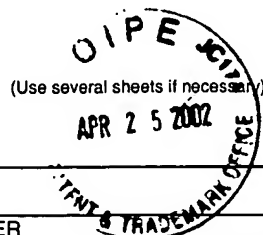
APPLICANT

CRAPO et al

FILING DATE

GROUP

January 22, 2002



## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	6,103,714	8/2000	Fridovich et al			
	5,747,026	5/1998	Crapo			
	6,084,093	7/2000	Riley et al			
	6,046,188	4/2000	Malfroy-Camine et al			
	2,951,799	9/1960	Sharp			
	4,885,114	12/1989	Gordon et al			
	5,281,616	1/1994	Dixon et al			

## FOREIGN PATENT DOCUMENTS

DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
WO 99/23097	5/1999	PCT			
WO 99/55388	11/1999	PCT			
WO 96/40223	12/1996	PCT			
WO 92/15099	9/1992	PCT			
WO 00/43395	7/2000	PCT			
WO 01/96345	12/2001	PCT			
WO 01/26655	4/2001	PCT			

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)

	O'hara et al, "Potentiation of radiation-induced cell kill by synthetic metalloporphyrins", Int. J. Radiat. Oncol. Biol. Phys. 16(4):1049-1052 (1989)
	Lee et al, "Rapid decomposition of peroxynitrite by manganese porphyrin-antioxidant redox couples", Bioorganic & Medical Chemistry Letters 7(22):2913-2918 (1997)
	Madakyan et al, "New watersoluble metal complexes of meso-tetrakis[3-N-(2'-hydroxy ethyl)pyridyl]porphyrins and their pharmacological activity", Arm. Khim. Zh. 42(11):724-728 - Chemical Abstracts 113:653 - Abstract No. 114907h
	Wheelhouse et al, "Cationic Porphyrins as Telomerase Inhibitors; the Interaction of Tetra-(N-methyl-4-pyridyl)porphine with Quadruplex DNA", J. Am. Chem. Soc. 120(13):3261-3262 (1998)
	Zahedi, "Semiempirical molecular orbital calculations of biliverdin: study of dynamics and energetics of the self-association of a two-electron oxidation product", Theochem. 531:79-88 (2000)
	Lord, "Redox characteristics of nickel and palladium complexes of the open-chain tetrapyrrole octaethylbilindione: a biliverdin model", Inorg. Chem. 39(6):1128-1134 (2000)
	Balch, "Isolation and characterization of an iron biliverdin-type complex that is formed along with verdohemochrome during the coupled oxidation of iron (II) octaethylporphyrin", Am. Chem. Soc. 115(20):9056-9061 (1993)
	Koerner, "Carbon monoxide production during the oxygenation of cobalt complexes of linear etrapyrroles", Inorg. Chem. 37(5):982-988 (1998)
	Balch, "Solid-state self-association of the two-electron oxidation product of a biliverdin analogue", J. Chem. Soc. Chem. Commun. 6:643-644 (1995)
	Balch, "Geometric and electronic structure and dioxygen sensitivity of the copper complex of octaethylbilindione, a biliverdin analog", J. Am. Chem. Soc. 115(25):12206-12207 (1993)

\*Examiner

Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

Form PTO-FB-A820 (Also PTO-1449)

INFORMATION DISCLOSURE  
CITATION

ATTY. DOCKET NO.

SERIAL NO.

2661-22

10/051,367

APPLICANT

CRAPO et al

FILING DATE

GROUP

January 22, 2002

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

## FOREIGN PATENT DOCUMENTS

DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO
0 414 915 A1	3/1991	EPO				
0 524 161 A1	1/1993	EPO				
92/07935	5/1992	PCT				

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)

	Falk, "Contributions to the chemistry of pyrrolic pigments", Tetrahedron 37(4):761-767 (1981)
	Burke, "Photochemical and thermal transformations of phytochrome", Chem. Physiol. Bile Pigm., Int. Symp., pages 509-517 (1975)
	Madakyan et al, "Some metal complexes of meso-tetrakis (3-N-substituted pyridyl) porphyrins and their bioactivity", Arm. Khim. Zh. 42(10):642-646 (1989)
	Crapo et al, 721195, Document No. 123:218443 (1995)
	Sheldon, Chapter 1 in Metalloporphyrins in Catalytic Oxidations, Marcel Dekker, Inc. (1994)
	Butje et al, "Electronic Spectra, Resonance Raman Spectra and Solution Properties of Water-soluble (Cu(II), Ni(II) and Co(III) Porphyrins", Inorg. Chim. Acta 167:97-108 (1990)
	Davila et al, "Sterically-Hindered Zinc Porphyrins for Solar-Energy Conversion", J. Chem. Soc., Chem. Commun., pages 525-527 (1987)
	Kaufmann et al, "Separation of the Rotational Isomers of Tetrakis(N-methyl-2-pyridiniumyl)porphyrin and Crystal Structure of $\alpha, \alpha, \alpha, \beta$ -(Tetrakis(N-methyl-2-pyridiniumyl)porphyrin)copper Hexacyanoferrate", Inorg. Chem. 34:5073-5079 (1995)
	Sari et al, "Interaction of Cationic Porphyrins with DNA: Importance of the Number and Position of the Charges and Minimum Structural Requirements for Intercalation", Biochemistry 29:4205-4215 (1990)
	Vodzinskii et al, "Porphyrines and Their Derivatives. XX. Synthesis and Properties of 2-Nitro-5,10,15,20-tetraheterylporphyrins", Russian Journal of Organic Chemistry 34(6):882-885 (1998)
	Hambright et al, "Manganese(III) porphyrin isomers: polarography and stannous ion reduction kinetics", Porphyrin Chem. Adv., editor: Longo, [Pap. Porphyrin Symp.], pages 284-292, Meeting Date 1977
	Batinic-Haberle et al, "A Potent Superoxide Dismutase Mimic" Manganese[B]-Octabromo-meso-tetrakis-(N-methylpyridinium-4-yl)Porphyrin", Archives of Biochemistry and Biophysics 343(2):225-233 (1997)
	Crapo and Tierney, "Superoxide dismutase and pulmonary oxygen toxicity", Am. J. Physiol. 226:1401-1407 (1974)
	Tjahjono et al, "Cationic porphyrins bearing diazolium rings: synthesis and their interaction with calf thymus DNA", Biochemica et Biophysica Acta 1472:333-343 (1999)
	Callot and Schaeffer, "Ring contraction of homoporphyrins to porphyrins, meso-Reactivity of 5,10,15-Triphenylporphin and Porphin", J. Chem. Research (S):51 (1978)
	Inoue et al, "Expression of a Hybrid Cu/Zn-type Superoxide...", J. Bio. Chem., Vol. 266, No. 25, pp. 16409-16414 (1991)
	Day et al, "Manganic Porphyrins Possess Catalase Activity...", Arch. Biochem. Biophys., Vol. 347, No. 2, pp. 256-262 (1997)
	Tsan, M-F., "Superoxide Dismutase and Pulmonary Oxygen Toxicity," XP-002074505, pp. 286-290

\*Examiner

Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

Form PTO-FB-A820 (Also PTO-1449)

## INFORMATION DISCLOSURE CITATION

ATTY. DOCKET NO.

SERIAL NO.

2661-22

10/051,367

APPLICANT

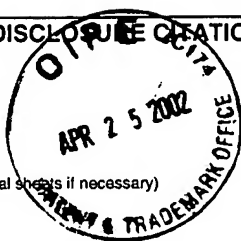
CRAPO et al

FILING DATE

GROUP

January 22, 2002

(Use several sheets if necessary)



## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4,746,735	5/1988	Kruper, Jr. et al			
	5,236,915	8/1993	Fiel			
	5,051,337	9/1991	Sakoda et al			
	5,262,532	11/1993	Tweedle et al			
	4,758,422	7/1988	Quay			

## FOREIGN PATENT DOCUMENTS

DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO
2 676 738	11/1992	France				
0 186 962	7/1986	EPO				
0 127 797	12/1984	EPO				
0 336 879	10/1989	EPO				
0 337 601	10/1989	EPO				
0 345 171	12/1989	EPO				
WO 93/02090	2/1993	PCT				
WO 96/09053	3/1996	PCT				
WO 95/31197	11/1995	PCT				

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)

	Foran et al, "Effect of Electrolyte Concentration on Axial Anion Ligation in Manganese(III) <i>meso</i> -Tetraphenylporphyrin Chlorides", Inorg. Chem. 31:1463-1470 (1992)
	Milgrom, Facile Aerial Oxidation of a Porphyrin. Part 3. Some Metal Complexes of <i>meso</i> -Tetrakis-(3,5-di- <i>t</i> -butyl-4-hydroxyphenyl)porphyrin", J. Chem. Soc. Perkin Trans. 11:71-79 (1988)
	Bockhorst and Hoehn-Berlage, "An Optimized Synthesis of Manganese <i>meso</i> -Tetra(4-sulfonato-phenyl)porphine: A Tumor-Selective MRI Contrast Agent", Tetrahedron 50(29):8657-8660 (1994)
	Keinan et al, "Catalytic Antibodies. Circular Dichroism and UV-Vis Studies of Antibody-Metalloporphyrin Interactions", Inorg. Chem. 31:5433-5438 (1992)
	Marx, "Role of Gene Defect in Heredity ALS Clarified", Science 261:986 (1993)
	Epp et al, "Superoxide Dismutase Activity of Manganese Chelates", 76-78 (1986)
	Bors et al, "An expanded function for superoxide dismutase", Chemical Abstracts 115:388 (1991), Abstract No. 109185h
	Milgrom et al, "Redox Behaviour of Phenolic Porphyrins in Basic Solutions: A Reappraisal", Free Rad. Res. 24(1):19-29 (1996)
	Szabo et al, "Evaluation of the relative contribution of nitric oxide and peroxynitrite to the suppression of mitochondrial respiration in immunostimulated macrophages using a manganese mesoporphyrin superoxide dismutase mimetic and peroxynitrite scavenger", FEBS Letters 381:82-86 (1996)
	Patel et al, "Requirement for Superoxide in Excitotoxic Cell Death", Neuron 16:345-355 (1996)
	Bamford et al, "The Squalenyls: Synthesis and Biological Activity of Some C3-Modified Analogues; Replacement of a Carboxylic Acid or Methyl Ester with an Isoelectric Heterocyclic Functionality", J. Med. Chem. 38:3502-3513 (1995)
	Szabo et al, "Peroxynitrite Is Involved in the Pathogenesis of the Vascular Contractile and Energetic Failure in Endotoxic Shock", Shock Society Meeting (1996)

\*Examiner

Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

Form PTO-FB-A820 (Also PTO-1449)

## INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

ATTY. DOCKET NO.

2661-22

APPLICANT

SERIAL NO.

10/051,367

CRAPO et al

FILING DATE

January 22, 2002

GROUP

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5,472,691	12/1995	Marklund et al			
	5,248,603	9/1993	Marklund et al			
	5,366,729	11/1994	Marklund et al			
	4,895,719	1/1990	Radhakrishnam			
	4,963,367	10/1990	Ecanow			

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, etc.)

	Stralin et al, "Effects of Oxidative Stress on Expression of Extracellular Superoxide Dismutase, CuZn-Superoxide Fibroblast", Biochem. J. 298:347-352 (1994)
	Folz et al, "Extracellular Superoxide Dismutase (SOD3): Tissue-Specific Expression, Genomic Characterization, and Computer-Assisted Sequence Analysis of the Human EC SOD Gene", Genomics 22:162-171 (1994)
	Clyde et al, "Distribution of Manganese Superoxide Dismutase mRNA in Normal and Hyperoxic Rat Lung", American Journal of Respiratory Cell and Molecular Biology 8:530-537 (1993)
	Wolberg et al, "Electrochemical and Electron Paramagnetic Resonance Studies of Metalloporphyrins and Their Electrochemical Oxidation Products", Journal of the American Chemical Society 92(10):2982-2990 (1970)
	Pasternack et al, "Superoxide Dismutase Activities of an Iron Porphyrin and Other Iron Complexes", Journal of the American Chemical Society 101(4):1026-1031 (1979)
	Winkelman, James, "The Distribution of Tetraphenylporphinesulfonate in the Tumor-bearing Rat", Cancer Research 22:589-596 (1962)
	Moisy et al, "Catalytic Oxidation of 2,6-Di- <i>tert</i> -butylphenol by Molecular Oxygen Electroassisted by Poly(Pyrrole-Manganese-Porphyrin)", New J. Chem. 13:511-514 (1989)
	Malinski et al, "Characterization of Conductive Polymeric Nickel(II) Tetrakis(3-methoxy-4-hydroxy-phenyl)Porphyrin as an Anodic Material for Electrocatalysis", J. Electrochem. Soc. 138(7):2008-2015 (1991)
	Weinraub et al, "Chemical properties of water-soluble porphyrins. 5. Reactions of some manganese (III) porphyrins with the superoxide and other reducing radicals", Int. J. Radiat. Biol. 50(4):649-658 (1986) (Abs)
	Fajer et al, " $\pi$ -Cation Radicals and Dications of Metalloporphyrins", Journal of the American Chemical Society 92(11):3451-3459 (1970)
	Pasternack et al, "Aggregation of Nickel(II), Copper(II), and Zinc(II) Derivatives of Water-Soluble Porphyrins", Inorganic Chemistry 12(11):2606-2610 (1973)
	Datta-Gupta et al, "Synthetic Porphyrins. I. Synthesis and Spectra of Some <i>para</i> -Substituted <i>meso</i> -Tetraphenylporphines (1)", J. Heterocycl. Chem. 3:495-502 (1966)
	Harriman et al, "Photochemistry of Manganese Porphyrins Part 2.-Photoreduction", pp. 1543-1552
	Longo et al, "The Synthesis and Some Physical Properties of <i>ms</i> -Tetra(pentafluorophenyl)-porphin and <i>ms</i> -Tetraphenylporphines (1)", Notes 6:927-931 (1969)
	Barnitz-McLaughlin et al, "Reactions of Fe <sup>III</sup> ( <i>meso</i> - $\alpha,\alpha,\alpha,\alpha$ -tetrakis[0-[N-methylisonicotinamido)phenyl]porphyrin) <sup>5+</sup> and Fe <sup>III</sup> ( <i>meso</i> -tetrakis[N-methylpyridinium-4-yl]porphyrin) <sup>5+</sup> with NC <sup>-</sup> , CO <sub>2</sub> <sup>-</sup> , and O <sub>2</sub> <sup>-</sup> ", Inorg. Chem. 32:941-947 (1993)
	Pasternack et al, "On the Aggregation of Meso-Substituted Water-Soluble Porphyrins", Journal of American Chemical Society 94(13):4511-4517 (1972)
	Datta-Gupta et al, "Synthetic Porphyrins II Preparation and Spectra of Some Metal Chelates of <i>para</i> ", Journal of Substituted- <i>mesa</i> -Tetraphenylporphines", J. of Pharmaceutical Science 57(2):300-304 (1968)
*Examiner	Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-FB-A820 (Also PTO-1449)



INFORMATION DISCLOSURE  
CITATION

(Use several sheets if necessary)

APR 25 2002

PATENT &amp; TRADEMARK OFFICE

ATTY. DOCKET NO.

2661-22

APPLICANT

CRAPO et al

FILING DATE

January 22, 2002

SERIAL NO.

10/051,367

GROUP

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5,130,245	7/1992	Marklund et al			
	5,169,630	12/1992	Okaya et al			
	5,202,317	4/1993	Bruice			
	5,217,966	6/1993	Bruice			
	5,223,538	6/1993	Fridovich			
	5,227,405	7/1993	Fridovich			
	5,674,467	10/1997	Maier et al			
	5,767,272	6/1998	Wijesekera et al			
	5,493,017	2/1996	Thieren et al			

## FOREIGN PATENT DOCUMENTS

DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
0 282 899	9/1988	EPO			
0 462 836	12/1991	EPO			
WO 96/09038	3/1996	PCT			

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)

	Boissinot et al, "Rational Design and Expression of a Heparin-Targeted Human Superoxide Dismutase", Biochemical and Biophysical Research Communication 190(1):250-256 (1993)
	Oury et al, "Cold-induced Brain Edema in Mice", The Journal of Biological Chemistry 268(21):15394-15398 (1993)
	Oury et al, "Extracellular superoxide dismutase, nitric oxide, and central nervous system O <sub>2</sub> toxicity", Proc. Natl. Acad. Sci. USA 89:9715-9719 (1992)
	Pasternack et al, "Catalyst of the Disproportionation of Superoxide by Metalloporphyrins III", Journal of Inorganic Biochemistry 15:261-267 (1981)
	Oury et al, "Establishment of Transgenic Mice Expressing Human Extracellular Superoxide Dismutase", American Review of Respiratory Disease 143(4):A515 (1991), International Conference Supplement Abstracts - No. 236
	Oury et al, "Transgenic Mice Superexpressing Human Extracellular Superoxide Dismutase Show Increased Resistance to Cold-induced Brain Edema, But are More Susceptible to Hyperbaric Oxygen", American Review of Respiratory Disease 145(4):A713 (1992), International Conference Supplement Abstracts - No. 211
	Oury et al, "Immunocytochemical Localization of Extracellular Superoxide Dismutase in Human Lung", American Review of Respiratory Disease 147(4):A713 (1993), International Conference Supplement Abstracts - No. 246
	Oury, Tim D., "Extracellular Superoxide Dismutase and Nitric Oxide: Transgenic and Immunocytochemical Studies", Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Pathology in the Graduate School of Duke University (June 17, 1993)

\*Examiner

Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

Form PTO-FB-A820 (Also PTO-1449)

**INFORMATION DISCLOSURE  
CITATION**

ATTY. DOCKET NO.

SERIAL NO.

2661-22

10/051,367

APPLICANT

CRAPO et al

FILING DATE

GROUP

January 22, 2002

(Use several sheets if necessary)

**OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)**

	Gosh, "Substituent Effects on Valence Ionization Potentials of Free Base Porphyrins: Local Density Functional Calculations and Their Relevance to Electrochemical and Photoelectron Spectroscopic Studies", J. Am. Chem. Soc. 117:4691-4699 (1995)
	De Peretti et al, "Imidazol[2,1-b]benzoxazole-3-acetamide derivatives, their preparation, and their therapeutic use", Chemical Abstracts 121:1016, Abstract No. 121:200896u
	Oberley et al, "Anticancer activity of metal compounds with superoxide dismutase activity", Agents and Actions 15(5/6):535-538 (1984)
	Collman et al, "Synthesis of "Face to Face" Porphyrin Dimers Linked by 5,15-Substituents: Potential Binuclear Multielectron Redox Catalysts", J. Am. Chem. Soc. 103:516-533 (1981)
	Gassman et al, "Electronic Effects of Peripheral Substituents in Porphyrins: X-ray Photoelectron Spectroscopy and ab Initio Self-Consistent Field Calculations", J. Am. Chem. Soc. 114:9990-10000 (1992)
	Bishop et al, "The Reaction of Thiomides with Phosphorus Ylides", J. Org. Chem. 56:5079-5091 (1991)
	Picker et al, "Cobalt(III) complexes of water soluble synthetic meso-substituted porphyrins as radiation sensitizers for oxidic and hypoxic tumor cells", 8-Radiation 112:405 (1990) Abstract No. 112:73026d
	McCord et al, "Superoxide Dismutase-An Enzymic Function for Erythrocuprein", Biochemistry 492, page 346
	McCord et al, Superoxide Dismutase An Enzymic Function for Erythrocuprein (Hemocuprein)", The Journal of Biological Chemistry 244(22):6049-6055 (1969)
	Crapo et al, "Superoxide Dismutase and Oxygen Toxicity", Clinical Research, pg. 222
	Crapo et al, "The Failure of Aerosolized Superoxide Dismutase to Modify Pulmonary Oxygen Toxicity", American Review of Respiratory Disease 115:1027-1033 (1977)
	Joester et al, "Superoxide Dismutase Activity of Cu <sup>2+</sup> -Amino Acid Chelates", FEBS Letters 25(1):25-28 (1972)
	Brigelius et al, "Superoxide Dismutase Activity of Low Molecular Weight Cu <sup>2+</sup> -Chelates Studied by Pulse Radiolysis", FEBS Letters 47(1):72-75 (1974)
	Sorenson, John R.J., "Copper Chelates as Possible Active Forms of the Antiarthritic Agents", Journal of Medicinal Chemistry 19(1):135-148 (1976)
	deAlvarez et al, "Mechanism of Superoxide Anion Scavenging Reaction by Bis-(Salicylato)-Copper(II) Complex", Biochemical and Biophysical Research Communications 69(3):687-694 (1976)
	Halliwell, Barry, "The Superoxide Dismutase Activity of Iron Complexes", FEBS Letters 56(1):34-38 (1975)
	McClune et al, "Catalysis of Superoxide Dismutation by Iron-Ethylenediaminetetraacetic Acid Complexes. Mechanism of the Reaction and Evidence for the Direct Formation of an Iron(III)-Ethylenediaminetetraacetic Acid Peroxo Complex from the Reaction of Superoxide with Iron(II)-Ethylenediaminetetraacetic Acid", Communications to the Editor, pg. 5220-5222 (1977)
	Diguiseppi et al, "Putative Superoxide Dismutase Activity of Iron-EDTA: A Reexamination", Archives of Biochemistry and Biophysics 203(1):145-150 (1980)
	Robertson, Jr. Et al, "Does Copper-D-Penicillamine Catalyze the Dismutation of O <sub>2</sub> <sup>-</sup> ?", Archives of Biochemistry and Biophysics 203(2):830-831 (1980)
	Werringloer et al, "The Integration of Divalent Copper and the Microsomal Electron Transport System", The Journal of Biological Chemistry, 254(23):11839-11846 (1979)
	Pasternack et al, "Catalyst of the Disproportionation of Superoxide by Metalloporphyrins", Journal of Inorganic Biochemistry 11:261-267 (1979)
	Archibald et al, "Manganese and Defenses against Oxygen Toxicity in <i>Lactobacillus plantarum</i> ", Journal of Bacteriology 145(1):442-451 (1981)
	Archibald et al, "Manganese, Superoxide Dismutase, Oxygen Tolerance in Some Lactic Acid Bacteria, Journal of Bacteriology 146(3):928-936 (1981)

\*Examiner

Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

Form PTO-FB-A820 (Also PTO-1449)

INFORMATION DISCLOSURE  
CITATION

ATTY. DOCKET NO.

SERIAL NO.

2661-22

10/051,367

APPLICANT

CRAPO et al

FILING DATE

GROUP

January 22, 2002

(Use several sheets if necessary)

APR 25 2002

PATENT &amp; TRADEMARK OFFICE

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)

	Archibald et al, "The Scavenging of Superoxide Radical by Manganous Complex: <i>In Vitro</i> , Archives of Biochemistry and Biophysics 214(2):452-463 (1982)
	Archibald et al, "Investigations of the State of the Manganese in <i>Lactobacillus plantarum</i> , Archives of Biochemistry and Biophysics 215(2):589-596 (1982)
	Darr et al, "A Mimic of Superoxide Dismutase Activity Based Upon Desferrioxamine B and Manganese(IV)", Archives of Biochemistry and Biophysics 258(2):351-355 (1987)
	Beyer, Jr., "Characterization of a Superoxide Dismutase Mimic Prepared from Desferrioxamine and MnO <sub>2</sub> , Archives of Biochemistry and Biophysics 271(1):149-156 (1989)
	Faulkner et al, "Characterization of Mn(III) Complexes of Linear and Cyclic Desferrioxamines as Mimics of Superoxide Dismutase Activity", Archives of Biochemistry and Biophysics 310(2):341-346 (1994)
	Faulkner et al, "Stable Mn(III) Porphyrins Mimic Superoxide Dismutase <i>in Vitro</i> and Substitute for It <i>in Vivo</i> , The Journal of Biological Chemistry 269(38):23471-23476 (1994)
	Liochev et al, "A Cationic Manganic Porphyrin Inhibits Uptake of Paraquat by <i>Escherichia coli</i> ", Archives of Biochemistry and Biophysics 321(1):271-275 (1995)
	Peretz et al, "Chemical properties of water-soluble porphyrins 3. The reaction of superoxide radicals with some metalloporphyrins", Int. J. Radiat. Biol. 42(4):449-456 (1982)
	Baudry et al, "Salen-Manganese Complexes are Superoxide Dismutase-Mimics", Biochemical and Biophysical Research Communication 192(2):964-968 (1993)
	Gonzalez et al, "EUK-8, a Synthetic Superoxide Dismutase and Catalase Mimetic, Ameliorates Acute Lung Injury in Endotoxemic Swine", The Journal of Pharmacology and Experimental Therapeutics 275(2):798-806 (1995)
	Deune et al, "Prevention of Ischemia-Reperfusion Injury with a Synthetic Metalloprotein Superoxide Dismutase Mimic, SC52608", Plastic and Reconstructive Surgery 98(4):711-718 (1996)
	Lowe et al, "Comparison of the cardiovascular effects of two novel superoxide dismutase mimetics, SC-55858 and SC-54417, in conscious dogs", European Journal of Pharmacology 304:81-86 (1996)
	Weiss et al, "Manganese-based Superoxide Dismutase Mimetics Inhibit Neutral Infiltration <i>in Vivo</i> ", The Journal of Biological Chemistry 271(42):26149-26156 (1996)
	Jin et al, "A new route to water soluble porphyrins: phosphonium and ammonium type cationic porphyrins and self-assembly", Chem. Commun., pgs. 1939-1940 (1996)
	Pitié et al, "Oxidation at Carbon-1' of DNA Deoxyriboses by the Mn-TMPyP/KHSO <sub>5</sub> System Results from a Cytochrome P-450-Type Hydroxylation Reaction", J. Am. Chem. Soc. 117:2935-2936 (1995)
	Libby et al, "Cationic Porphyrin Derivatives As Inhibitors of Polyamine Catabolism", Biochemical Pharmacology 50(9):1527-1530 (1995)
	Ilán et al, "Superoxide Dismutating Activity of an Iron Porphyrin", Inorg. Nucl. Chem. Letters 17(3/4):93-96 (1981)
	Solomon et al, "Chemical properties of Water-Soluble Porphyrins. 2. The Reaction of Iron(III) Tetrakis(4-N-methylpyridyl)porphyrin with the Superoxide Radical Dioxygen Couple", J. Phys. Chem. 86:1842-1849 (1982)
	Weinraub et al, "Chemical Properties of Water-Soluble Porphyrins. 1. Equilibria between Some Ligands and Iron(III) Tetrakis (4-N-methylpyridyl)porphyrin", J. Phys. Chem. 86:1839-1842 (1982)
	Day et al, "A Metalloporphyrin Superoxide Dismutase Mimetic Protects Against Paraquat-Induced Endothelial Cell Injury, <i>in Vitro</i> ", The Journal of Pharmacology and Experimental Therapeutics 275(3):1227-1232 (1995)
	Kariya et al, "Superoxide Dismutase (SOD) Activity with Fe-chlorin e6-Na and Suppression of Malignant Tumor Growth in Rats", Cancer Biotherapy 10(2):139-145 (1995)
	Liochev et al, "A Cationic Manganic Porphyrin Inhibits Uptake of Paraquat by <i>Escherichia Coli</i> , Archives of Biochemistry and Biophysics 321(1):271-275 (1995)

\*Examiner

Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

Form PTO-FB-A820 (Also PTO-1449)

INFORMATION DISCLOSURE  
CITATION

ATTY. DOCKET NO.

SERIAL NO.

2661-22

10/051,367

APPLICANT

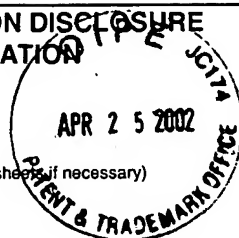
CRAPO et al

FILING DATE

GROUP

January 22, 2002

(Use several sheets if necessary)



## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5,599,924	1/1990	Therien et al			
	4,851,403	7/1989	Picker et al			
	4,892,941	1/1990	Dolphin et al			
	5,994,339	11/1999	Crapo et al			
	6,127,356	10/2000	Crapo et al			

## FOREIGN PATENT DOCUMENTS

DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
0 532 327	3/1993	EPO			
WO 94/04614	3/1994	PCT			
WO 95/10185	4/1995	PCT			

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)

	Ohkawa et al, "Assay for Lipid Peroxides in Animal Tissues by Thiobarbituric Acid Reaction", Analytical Biochemistry 95:351 (1979)
	Yue et al, "Carvedilol, a New Vasodilator and Beta Adrenoceptor Antagonist, is an Antioxidant and Free Radical Scavenger", The Journal of Pharmacology and Experimental Therapeutics 263:(1992)
	Song et al, "Anti-HIV activities of anionic metalloporphyrins and related compounds", Antiviral Chemistry and Chemotherapy 8(2):85 (1996)
	Harriman and Porter, "Photochemistry of Manganese Porphyrins", J. Chem. Soc. 275:1532-1542 (1979)
	Bedioui et al, "Metalloporphyrin-Polypyrrole Film Electrode: Characterization and Catalytic Application", J. Electroanal. Chem. 207:87-99 (1986)
	Ruoslahti et al, "Arg-Gly-Asp: A Versatile Cell Recognition Signal", Cell 44:517-518 (1986)
	Kumar et al, "Radioprotection by Antioxidant Enzymes and Enzyme Mimetics", Pharmac. Ther. 39:301-309 (1988)
	Weiss et al, "Evaluation of Activity of Putative Superoxide Dismutase Mimics", The Journal of Biological Chemistry 268(31):23049-23054 (1993)
	Parge et al, "Atomic structures of wild-type and thermostable mutant recombinant human Cu,Zn superoxide dismutase", Proc. Natl. Acad. Sci. USA 89:6109-6113 (1992)
	Lappin, "Part III Bioinorganic Studies", Inorganic Reaction Mechanisms 7:334-343 (1981)
	Sharma et al, "Synthesis of amphiphilic 5-(4-N-alkylpyridiniumyl)-10,15,20-triphenylporphyrins and their aggregational properties in different solvent systems", Chemical Abstracts Vol. 123, No. 1 (1995) - Abstract No. 9222q
	Schneider et al, "Ligand-Porphyrin Complexes: Quantitative Evaluation of Stacking and Ionic Contributions", J. Org. Chem. 59:7464-7472 (1994)
	Girardeau et al, "Substituent Effects in the Electroreduction of Porphyrins and Metalloporphyrins", Journal of the American Chemical Society 101(14):3857-3862 (1979)

\*Examiner

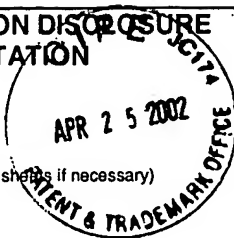
Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

Form PTO-FB-A820 (Also PTO-1449)

INFORMATION DISCLOSURE  
CITATION

(Use several sheets if necessary)



ATTY. DOCKET NO.

2661-22

APPLICANT

CRAPO et al

FILING DATE

January 22, 2002

SERIAL NO.

10/051,367

GROUP

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4,837,221	6/1989	Bonnett			
	4,614,723	9/1986	Schmidt			
	5,284,647	2/1994	Niedballa			
	5,162,519	11/1992	Bonnett			
	5,236,914	8/1993	Meunier			
	5,171,680	8/1990	Mullenbach et al			

## FOREIGN PATENT DOCUMENTS

DOCUMENT	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
WO 91/04315	1991	PCT			
WO 98/33503	6/1998	PCT			

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent pages, etc.)

	Naruta et al, J. Am. Chem. Soc. 113:3595-3596 (1991)
	Leondiadis et al, J. Org. Chem. 54:6135-6138 (1989)
	Schlözer et al, "Reactivity of Unsubstituted Porphin", German version: Angew. Chem. 87:388 (1975)
	Rosenfeld et al, "Safety and pharmacokinetics of recombinant human superoxide dismutase administered intratracheally to premature neonates with respiratory distress syndrome", Pediatrics 97(Pt 1):811-817 (1996)
	Comhair et al, "Rapid loss of superoxide dismutase activity during antigen-induced asthmatic response", Lancet 355(9204):624 (2000)
	Lee and Smith, "Syntheses of symmetrically substituted 5-alkyl- and 5-aryl-dihydrodipyrins and of porphyrins and bisporphyrins therefrom", J. Chem. Soc. Perkin Trans 1:1215-1227 (1997)
	Louati et al, "Homophophrines: Effets D'Une Coupure De Conjugaison Cyclique Sur La Reactivite Redox Des Porphyrines", Nouv. J. Chim. 2:163-168 (1978)
	Elangovan and Krishnan, "Photophysical properties of porphyrin amphiphiles bearing pyridinium alkyl groups", Chemical Physics Letters 194(1,2):139-146 (1992)
	Hambricht, Peter, "An acid solvolysis kinetic study of manganese(II)-tetra(2-N-methylpyridyl)porphine", J. Inorg. Chem. 39:1102-1103 (1977)
	Vergeldt et al, "Intramolecular Interactions in the Ground and Excited State of Tetrakis(N-methylpyridyl)porphyrins", J. Phys. Chem. 99:4397-4405 (1995)

\*Examiner

Date Considered

Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application.

Form PTO-FB-A820 (Also PTO-1449)